

ABSTRACT

The invention relates to the synthesis of aspartame involving enzymatic deformylation of an *N*-formyl- $\alpha$ -L-aspartyl-L-phenylalanine compound by treatment with an enzyme having formylmethionyl peptide deformylase activity and having as a co-factor group 5 to 11 bivalent metal ions. The invention also relates to selective preparation and recovery of aspartame from a mixture of *N*-formyl- $\alpha$ - and  $\beta$ -L-aspartyl-L-phenylalanine compounds by treatment with such enzyme. And finally, the invention relates to one-pot enzymatic synthesis of aspartame from *N*-formyl-L-aspartic acid and L- or D,L-phenylalanine methyl ester involving an enzymatic deformylation reaction simultaneously with an enzymatic coupling reaction, as well as to one-pot di- or oligopeptide synthesis by simultaneous enzymatic coupling and deformylation reactions in general.